

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 14-02-2005		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Operation Anaconda: Command and Control through VTC				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) James A. McPherson Paper Advisor (if Any): Patrick C. Sweeney				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT <p>Before the video-teleconference came into use, operational level commanders often relied on personal observations in order to make decisions. Commanders personally observed their subordinates' actions and were able to gain a "feel" for the battlefield.</p> <p>Advanced information technology has changed the way operational commanders communicate with subordinates. Face-to-face meetings and personal observations have largely been replaced by video-teleconferences (VTC). While in use for many years, Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) ushered in the first widespread use of the VTC as a Command and Control (C2) system. Many strategic and operational commanders have come to rely heavily on VTCs, almost to the exclusion of other forms of communication. Operation Anaconda conducted in OEF provides a good illustration of a breakdown in communication between two critical components due to an over-reliance on VTCs.</p> <p>VTCs, while offering significant capabilities, have inherent limitations as a command and control (C2) system that must be appreciated by operational commanders in order to ensure success. The over-reliance on VTCs in Operation Anaconda at the expense of personal face-to-face interaction degraded General Franks' ability to gauge his subordinates' level of understanding. Component staffs came to rely solely on VTCs for coordination to the exclusion of message traffic. As a result, components developed different perspectives concerning Anaconda. Additionally, component commanders relied heavily on their staffs for coordination and did not communicate personally with each other. These communication breakdowns contributed to many of the problems in the operation. The enemy in Operation Anaconda lacked the ability to exploit mistakes resulting from poor coordination. Nonetheless, these types of mistakes may prove to be disastrous against a formidable opponent in the future.</p>					
15. SUBJECT TERMS Anaconda, VTC, Command and Control, C2					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 23	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE
Newport, RI**

**Operation Anaconda:
Command and Control through VTC**

By

**James A. McPherson
LCDR US Navy**

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

14 February 2005

**Patrick C. Sweeney
Faculty Advisor**

Abstract

Before the video-teleconference came into use, operational level commanders often relied on personal observations in order to make decisions. Commanders personally observed their subordinates' actions and were able to gain a "feel" for the battlefield.

Advanced information technology has changed the way operational commanders communicate with subordinates. Face-to-face meetings and personal observations have largely been replaced by video-teleconferences (VTC). While in use for many years, Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) ushered in the first widespread use of the VTC as a Command and Control (C2) system. Many strategic and operational commanders have come to rely heavily on VTCs, almost to the exclusion of other forms of communication. Operation Anaconda conducted in OEF provides a good illustration of a breakdown in communication between two critical components due to an over-reliance on VTCs.

VTCs, while offering significant capabilities, have inherent limitations as a command and control (C2) system that must be appreciated by operational commanders in order to ensure success. The over-reliance on VTCs in Operation Anaconda at the expense of personal face-to-face interaction degraded General Franks' ability to gauge his subordinates' level of understanding. Component staffs came to rely solely on VTCs for coordination to the exclusion of message traffic. As a result, components developed different perspectives concerning Anaconda. Additionally, component commanders relied heavily on their staffs for coordination and did not communicate personally with each other. These communication breakdowns contributed to many of the problems in the operation. The enemy in Operation Anaconda lacked the ability to exploit mistakes resulting from poor coordination.

Nonetheless, these types of mistakes may prove to be disastrous against a formidable opponent in the future.

Before the video-teleconference came into use, operational level commanders often relied on personal observations in order to make decisions. Commanders personally observed their subordinates' actions and were able to gain a "feel" for the battlefield. General Patton's leadership in World War II offers a good example of the success that can result from personal interactions and observations. General Patton insisted on seeing the battle from the front lines rather than through the eyes of his staff.¹ His physical presence on the battlefield in Europe allowed him to develop a strong unity of command due to personal relationships with his immediate subordinates. Once his staff formulated a plan, Patton would bring his corps commanders together for open discussion and debate.² This open discussion gave the corps commanders a sense of ownership in the plan and helped synchronize efforts toward a common purpose.³ As a result, written orders were rarely over one page in length.⁴ Following the issuance of orders, Patton personally supervised their execution by visiting subordinate headquarters.⁵ He would often drop in on subordinates unannounced and simply look around. His years of experience enabled him to gain a feel for the climate in the headquarters and a sense of how the unit was performing.⁶ Through his physical contact with his corps commanders, Patton was able to effectively convey his intent and accurately evaluate performance.

Advanced information technology has changed the way operational commanders communicate with subordinates. Face-to-face meetings and personal observations have largely been replaced by video-teleconferences (VTC). As available bandwidth for VTCs increases, so will the reliance on VTCs as a command and control (C2) system and collaborative planning tool. Currently, the available bandwidth for VTCs is increasing at an amazing rate. At the peak of operations in Operation Iraqi Freedom (OIF), the average

bandwidth per person for satellite communications was 9,700 percent greater than the average during Operation Desert Storm.⁷ In May 2003, United States Central Command (USCENTCOM) averaged forty-four VTCs per day and this average is expected to increase to ninety per day by 2006.⁸ OIF and Operation Enduring Freedom (OEF) brought about the first widespread use of the VTC as a command and control system.⁹ VTCs over long distances are now being routinely used for collaborative planning among component commanders almost to the exclusion of other forms of communication. Strategic and operational level commanders have come to rely heavily on VTCs to communicate their intent to widely dispersed subordinates. In times of crisis, an operational level commander's physical presence in a theater of operations no longer seems required. VTCs have greatly enhanced a commander's ability to coordinate the efforts of component commands, but the resulting virtual command structure comes at a cost. VTCs, while offering significant capabilities, have inherent limitations as a command and control (C2) system that must be appreciated by operational commanders in order to ensure success. These limitations can lead to a breakdown in communication if there is an over-reliance on VTCs. Operation Anaconda conducted in OEF provides a good illustration of a breakdown in communication between two critical components in the planning of a major operation. This study seeks to prove that a heavy reliance on VTCs for coordinating this operation, at the expense of personal interaction, contributed to substantial joint operational friction.

This paper will examine the intangible limitations of VTCs, focusing on how they affected C2 and collaborative planning during Anaconda. In order to place these limitations in the proper perspective, the first part of this paper will define terms and concepts related to the operational level of war and the virtual C2 environment. Following the discussion of

operational concepts, Operation Anaconda will be introduced to illustrate the miscommunication that can occur as a result of VTCs being used as a C2 system. This study will then turn its attention towards the specific limitations of VTCs in order to provide the framework for the analysis of Operation Anaconda. While important, the technological limitations of VTCs such as limited bandwidth and interoperability of equipment and software will not be addressed. Rather, this part of the paper will focus on the nature of personal interactions that occur during VTCs and how they differ from traditional meetings. In this context, the author will then show how Operation Anaconda suffered from an over-reliance on VTCs that led to miscommunication. This analysis will conclude with planning considerations and suggestions for ways that future joint force commanders might mitigate some of the challenges of long-distance C2.

United States joint doctrine identifies three levels of war: strategic, operational, and tactical. The operational level serves as a link between the strategic objectives and the tactical employment of forces.¹⁰ Regional combatant commanders, subordinate joint commands, such as joint task forces, and numbered armies such as General Patton's Third Army often conduct operations at the operational level of war. This paper will focus on the coordination and collaborative planning at the operational level. C2 is defined in Joint Publication 3-0 as "... the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of a mission."¹¹ Operational level commanders have the authority to construct a C2 structure within their command that is best suited to the assigned mission. While the way in which a commander organizes his C2 structure is beyond the scope of this paper, suffice it to say that it is influenced by the increased span of control made possible by the VTC. The number of

subordinates that report directly to the commander shapes his span of control. The use of VTCs seems to expand a commander's effective span of control by offering much faster and richer means of communication. As a commander's span of control increases, he must rely less on physical contact with subordinates and more on virtual presence. For the purpose of this paper, a virtual commander is defined as a commander who has assumed command of an organization, is not physically present, and maintains command presence through the use of VTCs.¹² Similarly, a virtual C2 environment is made up of widely dispersed components who communicate through electronic media, primarily VTC.

Operation Anaconda, conducted during OEF in Afghanistan, provides a good example of a virtual C2 environment with heavy reliance on VTCs for coordination. Anaconda was conducted in March 2002 and directed by Combined Joint Task Force Mountain (CJTF MTN) under the overall direction of USCENTCOM. The fighting took place in the Shah-i-Kot valley in southeastern Afghanistan and was the largest coalition operation in the war.¹³ In less than fourteen days, American and coalition forces killed hundreds of enemy forces, chased many more from the area, and claimed a region that had been a sanctuary for Afghan fighters.¹⁴ General Franks, Commander, USCENTCOM, relied heavily on daily VTCs for coordination since he opted not to forward deploy. Instead, he chose to remain at USCENTCOM headquarters in Tampa, Florida.¹⁵ General Franks' component commanders were forward deployed, but they arrived in theater at different times and were geographically dispersed. The resulting virtual C2 environment included the Combined Forces Land Component Commander (CFLCC) in Kuwait, the Combined Forces Air Component Commander (CFACC) in Saudi Arabia, Joint Special Operations Task Force (JSOTF) Dagger in Karshi Khanabad (K2), and JSOTF K-Bar in Kandahar. CJTF MTN,

created for Anaconda by CFLCC, started out in K2 and moved to Bagram in mid February 2002. Evidence suggests that the collaborative planning between components for Anaconda was accomplished almost exclusively through VTC.¹⁶

The planning for Operation Anaconda was initiated in January 2002. General Franks issued a fragmentary order identifying the Kowst-Gardez region as the most dangerous remaining pocket of enemy forces.¹⁷ He tasked Lt Gen Mikolashek, CFLCC, to start planning for operations in that area.¹⁸ On 13 February, Maj Gen Hagenbeck, commander of the 10th Mountain Division and CFLCC Forward (CFLCC FWD), assumed the lead role in planning and moved his headquarters from Karshi Khanabad to Bagram. Around this same time, CJTF MTN was formed with Maj Gen Hagenbeck as the CJTF commander.¹⁹ The CJTF MTN staff began extensive collaborative planning with two of the three JSOTFs in Afghanistan, namely JSOTF Dagger and JSOTF K-Bar. JTF MTN and the two JSOTFs were not collocated and this planning was accomplished using VTCs.²⁰ Members of the CFACC staff observed the planning in these VTCs, but did not understand the importance of Anaconda or CFACC's role in the operation.²¹ This miscommunication between CJTF MTN and CFACC contributed to many problems during the operation.²²

These problems were evident on 2 March when Operation Anaconda began. The Air Force was tasked to hit thirteen pre-planned targets ten minutes prior to the insertion of land forces. However, troops on the ground were calling for emergency close air support (CAS) prior to the pre-planned strikes. This seems to indicate that the ground forces were inserted prior to the strikes. Once the pre-planned strikes commenced, they were called off by a reconnaissance team on the ground when bombs started to fall around them. Later that day, Afghan General Lodin led Afghan and coalition special operations forces into the valley

from the north. He encountered heavy fire that included friendly fire from an AC-130 who misidentified the coalition convoy. As a result, General Lodin lost confidence in the operation and withdrew to Gardez.²³ This withdrawal of the main effort of the operation almost proved to be disastrous for the remaining American forces in the valley. Al Qaeda fighters turned their attention from General Lodin's retreat to the US forces in blocking positions along the eastern ridgeline. US troops were fighting for their lives due to a lack of coordination between JTF MTN and CFACC during the planning phase of the operation.

Component commanders and staffs in OEF coordinated their actions primarily through VTCs. Before analyzing the communication breakdown in VTCs between CJTF MTN and CFACC, it is important to understand the limitations of VTCs in general. Face-to-face meetings are the richest form of communication because participants benefit from multiple information cues, immediate feedback, and personal focus.²⁴ VTC is the second richest medium for communication because it provides the same capabilities with reduced information cues.²⁵ Researchers have found that VTCs can filter facial expressions, gestures, vocal intonations, and indicators of understanding.²⁶ Since ninety-three percent of meaning is contained in facial and vocal cues, the VTC's reduction is important.²⁷ During VTCs it is often difficult to maintain eye contact due to image resolution and body language can be challenging to interpret.²⁸ Discussion in VTCs tends to be more task-oriented and less social than discussion in face-to-face meetings.²⁹ Other researchers have found VTC discussions to be more orderly, formal, and polite with fewer interruptions and less conflict.³⁰ Evidence suggests that there is less participation in VTCs, possibly due to the "staged" feel of the conference room.³¹ Virtual teams communicating through VTCs tend to be less cohesive due to the absence of social remarks and the reduction in participation.³² This lack of

cohesiveness may also be attributed to a different pattern of trust development between groups in a VTC. Groups collaborating through VTC tend to exhibit a *fragile trust*, i.e., a trust that is continually challenged and requires constant reestablishment.³³ One researcher cited that it is “...unclear whether individuals can identify with and trust virtual leaders due to cold, deemphasized social and human context of interaction in such situations.”³⁴ Trust seems to be degraded even further when part of the group is meeting in person and other members are participating through VTC. In this case, “local coalitions” tend to form with a bias toward supporting the members who are physically present.³⁵

Although the limitations of the VTC are subtle, they seem to explain much of the miscommunication that occurred during the planning of Anaconda. The Combined Air Operations Center (CAOC) in Saudi Arabia may have even ignored its message traffic due to a heavy reliance on daily VTCs.³⁶ While Anaconda was being planned at CJTF MTN during January and most of February 2002, Lt Gen Moseley (CFACC) was completely in the dark. Lt Gen Moseley’s staff at the CAOC received no formal tasking for support of Anaconda until 20 February, just eight days prior to the planned D-day.³⁷ Prior to this date, it is unclear if anyone on the CAOC staff had any knowledge of CFACC’s role in supporting the operation or if they even knew about Anaconda at all.³⁸ Nonetheless, US Air Forces Central Command (CENTAF) had been getting message traffic concerning the operation for over a month. A CENTCOM Operation Order concerning the Khowst-Gardez region dated 5 January 2002 included CENTAF as an addressee.³⁹ In a taped interview on 12 March 2004, Colonel Rick Anderson, former Director of Combat Plans at the CAOC during Anaconda, was asked how the CAOC received message traffic from the components. Colonel Anderson replied, “We [CAOC] did not, everything was VTC.”⁴⁰

Since the CAOC relied solely on VTCs for coordination, its perspective concerning what was discussed in these VTCs seems to have been vastly different from CJTF MTN's perspective. In his interview, Colonel Anderson recalled participating in intelligence and SOF VTCs as early as 5 February in which the Khowst-Gardez region was discussed. Nonetheless, Anderson states that there was no discussion of an operation or CAOC involvement.⁴¹ He went on to indicate that communication was a problem due to VTCs and that information remained "close to the chest" and without a lot of detail.⁴² This lack of detail may be attributed to the fact that VTCs tend to be shorter than traditional meetings. Participants are unable to break up into smaller groups at the conclusion of the meeting to interact as teams or to refine courses of action.⁴³ Lt Col Bochain, an Air Liaison Officer for TF Dagger, participated in planning sessions with TF Dagger as early as December and throughout January. He stated in a taped interview on 8 April 2004 that Air Force personnel in the CAOC were present at the daily targeting VTCs where discussions about operations in the Shah-i-Kot Valley were taking place.⁴⁴ However, the operation was merely conceptual and the importance of the operation may not have been clearly communicated to the CAOC personnel.⁴⁵ From the CAOC's perspective, it was just another Army operation that did not necessarily require CAOC coordination.⁴⁶ This perspective was based on six months of experience. Prior to this point in the war, extensive air and ground coordination had not been necessary.⁴⁷ Since the CAOC did not benefit from written orders or personal interaction between component commanders, its perspective did not change during these VTCs. Differing perspectives seem to be common in VTCs and may be too subtle for participants to notice. A traditional face-to-face meeting between key members of the component staffs early in the planning cycle might have revealed this difference in perspective. The benefit of

social interactions and secondary conversations during this meeting might also have better identified CJTF MTN's concept for CFACC's role in the operation. Face-to-face meetings seem to be the best option for reaching agreements on courses of action due to improved cohesiveness from personal interaction.⁴⁸ Follow-on meetings also seem to solidify commitments to courses of action for the same reason.⁴⁹

In addition to differing perspectives, the virtual C2 environment in OEF highlights another VTC pitfall. The component commanders did not communicate directly with each other for coordination. Instead, they relied on their staffs to interact. Component commanders participated in VTCs daily with General Franks during the months of January and February 2002. Surprisingly, Anaconda was never mentioned at any of these VTCs. Lt Gen Moseley stated in an interview, "No air commanders recall Hagenbeck or Mikolashek raising Anaconda during a teleconference [prior to 20 February]."⁵⁰ Maj Gen Hagenbeck and Lt Gen Mikolashek must have assumed that the CJTF MTN staff was coordinating with the CFACC staff concerning Anaconda. Neither Lt Gen Mikolashek nor Maj Gen Hagenbeck attempted to contact Lt Gen Moseley personally to brief him on the plan.⁵¹ VTCs seemingly diminished the personal relationships among component commanders that are vital to unity of effort. In an interview, Maj Gen Hagenbeck (CJTF MTN) was quoted as saying, "I agree that you can't escape that. Those [relationships] are integral to everything you do. You know, you could sit around and have a cup of coffee and things might come out in a conversation that you would never discuss, [or] watch on a video-teleconference."⁵²

A lack of trust may have also contributed to the problems in Anaconda. A firestorm erupted after Anaconda between the Army and the Air Force concerning the lack of integrated planning. Members of each service blamed the other and some members of the

Air Force claimed that Maj Gen Hagenbeck intentionally left the Air Force out of the planning.⁵³ This illustrates an inherent mistrust between the services that surely existed prior to Anaconda. This mistrust was most likely magnified by collaboration that relied heavily on VTCs for communication.

VTCs not only eroded the interpersonal relationships between component commanders and component staffs, but they also eroded General Franks' ability to lead. General Franks' decision not to forward deploy forced a heavy reliance on VTCs to coordinate operations with his component commanders.⁵⁴ Since General Franks was separated from the battlefield by ten time zones, his sense of how his component commanders were interacting was filtered by what he observed on VTCs. During the Anaconda brief to USCENTCOM on 26 February 2002, Lt Gen Moseley seemed to be unprepared.⁵⁵ General Franks says in his book *American Soldier* that he was impressed with the plans for Anaconda, but sensed during the VTC that something was "not quite right."⁵⁶ He stated in the VTC, "Love it [Anaconda plan], but I need you guys to meet each other in a personal way. Lots of moving parts here. Put 'em [sic] together like a watch."⁵⁷ General Franks goes on to say in his book that he was looking at "some uncomfortable general officers on those VTC screens."⁵⁸ Due to the limitations of VTCs, General Franks was unable to fully uncover the CFACC's lack of understanding of the operation. General Franks could tell his component commanders were uncomfortable about the plan for Anaconda, but he could not be sure of the extent. Operational commanders must exercise caution when using the VTC as a command and control tool. Subordinates' perspectives and understanding of facts are not always effectively communicated during VTCs. A virtual commander may not be able to have the same confidence in his subordinates as a traditional commander who

communicates face-to-face.⁵⁹ If this had been a traditional meeting instead of a VTC, more open discussion about the coordination between the CFLCC and the CFACC might have occurred due to increased personal interaction. The less structured atmosphere may have also been more conducive to objections and debate.

The reason General Franks did not postpone Operation Anaconda is most likely due to the fact that Lt Gen Moseley did not object to proceeding with the plan. In the virtual environment, decision making tends to rely more on group consensus and “collective wisdom.”⁶⁰ The reason no objections were made might have been due to the nature of how subordinates interact with seniors during VTCs. Evidence suggests that subordinates participating in VTCs are more unlikely to raise objections than they are in face-to-face meetings.⁶¹

When one considers the fact that numerous secure VTCs were conducted every day between General Franks, component commanders, and component staffs, the miscommunication in Operation Anaconda seems hard to believe. Nonetheless, Maj Gen Hagenbeck planned an operation for two months that Lt Gen Moseley apparently knew nothing about. The explanation for this must lie in the method of communication. Due to bandwidth limitations, VTCs are usually very structured in order to make maximum use of the time allotted. They are also often shorter in duration than face-to-face meetings.⁶² This formal structure combined with the fact that Maj Gen Hagenbeck assumed his staff was communicating with the Lt Gen Moseley’s staff may be the reason Anaconda was never mentioned during component VTCs. Operation Anaconda was discussed extensively during VTCs between dispersed CJTF MTN staffs while CAOC staff members observed. The problem was one of perspective. The CAOC staff members who observed the VTCs did not

understand the importance of Anaconda. The formal, structured nature of VTCs most likely did not allow for casual conversations that may have revealed this lack of perspective. It is also important to note that none of the CAOC staff members who observed these VTCs voiced any concerns about Anaconda or asked questions concerning the CAOC's role in the operation. This may be due to the fact that the CAOC staff members were never formally invited to be participants in these VTCs.⁶³ The CAOC staff members were only observers and may have felt reluctant to interrupt. The reluctance of subordinates to interrupt seniors in VTCs can be seen in the Navy Lessons Learned from exercise TANDEM THRUST in April 2003. Commander, Seventh Fleet wrote,

Recent CJTF VTCs have seemed to go smoothly from the CJTF HQ view. It is very difficult to tell who is disconnected during the VTC and even harder, who is not getting good audio or video. Rarely will a subordinate interrupt the CJTF's brief to tell him that his briefer is garbled. Unless there is a gross problem, the CJTF and his staff will remain ignorant of the problem unless they ask for feedback.⁶⁴

The over-reliance on VTCs was not limited to Anaconda. Other components in theater relied on VTCs for most collaborative planning and communication at the component level. A Lesson Learned observation from US Naval Forces Central Command (COMUSNAVCENT) in December 2001 stated, "Secure VTC has proven to be a primary means of commander and staff coordination." It goes on to say, "Daily JWICS [Joint Worldwide Intelligence Communications System] VTCs between CENTCOM and component commanders has [sic] been the principle means for the CINC [General Franks] to provide his intent and guidance to his subordinate commanders."⁶⁵

In spite of its limitations, the VTC is a powerful tool that allows for a very rich form of communication between dispersed commanders. The purpose of this study is not to totally discount the value and utility of the VTC. Some would argue that an operational commander

can now communicate his intent far more clearly than he could in the past using written messages. Furthermore, the complex battle space of today requires the use of VTCs for synchronizing joint operations and ensuring battle space dominance. While this is true, operational commanders must be aware that complex operations of the past were often preceded by face-to-face meetings where courses of action were agreed upon. Written messages merely reinforced the commander's intent and provided additional details. Unlike face-to-face meetings of the past, VTCs tend to be a series of monologues instead of lively debate concerning a course of action.⁶⁶ When VTCs replace all other forms of communication, the open debate found in face-to-face meetings is degraded and the clarification provided by the written message is lost. A virtual commander must be aware of the potential miscommunication that may occur due to an over-reliance on the VTC as a C2 system.

Joint force commanders seem to be reluctant to move headquarters and staffs into theater when a crisis erupts. This reluctance is most likely due to the large amount of communication equipment and the huge staffs involved. One could argue that the fidelity of the communication and the capacity for more liaison officers at the permanent headquarters would exceed that of any forward deployed command post. Therefore, the joint force commander could offset the limitations of the VTC by maintaining a higher level of battle space awareness at the permanent headquarters. In addition, network-centric warfare of the future promises a level of battle space awareness that will allow "self synchronization" among component commanders. Nonetheless, a higher level of battle space awareness does *not* mean the commander's subordinates fully understand his vision of how the battle should evolve. In addition, battle space awareness does not guarantee the joint force commander's

ability to get a true “feel” for the battlefield. A combination of face-to-face meetings, VTCs, and written messages are the only way a commander can be sure that his vision is fully understood and that he fully understands the situation on the battlefield. Furthermore, a commander has the obligation to personally oversee his subordinates’ actions to ensure compliance. A commander cannot fulfill this obligation from eight thousand miles away.

Considering the limitations of VTCs, the following recommendations are offered to mitigate future miscommunications. It is important to note that these recommendations apply mainly to sustained combat operations. For short duration conflicts, VTCs may be more than adequate to supplement the commander’s vision and intent.

For sustained operations involving campaigns or major operations, operational commanders must maintain a headquarters that is as close to the physical battlefield as possible. This will allow face-to-face meetings with subordinates at critical junctures in the course of the conflict. These meetings will give the commander a much better feel for how his subordinates and subordinate staffs are operating. Additionally, the commander will be better able to convey his vision and ensure cooperation among subordinates toward that vision. VTCs are very useful for assessing progress, but they are much more limited in their ability to allow a commander to convey his concept of operations.

Operational commanders must keep their span of control at a manageable level. VTCs and other forms of communication made possible by advanced information technology entice commanders to increase their span of control. While technology has indeed made it easier to communicate with a larger number of subordinates, it has not changed the basic tenets of sound leadership. A large span of control combined with the inherent limitations of VTCs will inevitably erode the commander’s perception of his subordinates’ progress.

Along these lines, regional combatant commanders must resist the urge to designate themselves as joint task force commanders for large conflicts in their area of responsibility. This will most likely result in a very large span of control.

Component commanders at the operational level must interact personally. Since staffs have become so interconnected using VTCs and other forms of information technology, component commanders may be tempted to let all the coordination occur at the staff level. Not only is this practice risky due to potential miscommunication, but it also tends to erode the interpersonal relationships that would otherwise develop. The relationships that develop from personal interaction can be vital to each component's understanding of the supported commander's vision.

A final recommendation concerns written orders and message traffic. This author believes it is a dangerous practice to rely solely on VTCs to the exclusion of written orders. The miscommunication during Anaconda might have been cleared up had the CFACC staff read its message traffic. Participants in VTCs can have different perspectives on agreements reached during the meeting. When courses of action are agreed upon, the VTC must be followed up with written orders to clarify the agreements reached.

In conclusion, operational commanders must understand the limitations of a virtual command structure. VTCs are not the same as traditional face-to-face meetings. General Patton relied on personal contact with his subordinates in order to ensure his intent was carried out. The C2 system may have changed since World War II, but the nature of human beings has not. Interpersonal relationships among component commanders are still important in modern warfare and these relationships require periodic face-to-face meetings. Commanders who rely solely on virtual meetings run the risk of differing perspectives

among subordinates. Operation Anaconda illustrates the extent of miscommunication that can occur in the virtual environment. An operational commander's ability to ensure unified action toward a common vision requires more than synchronized actions in cyberspace. The enemy in Operation Anaconda lacked the ability to punish mistakes made at the operational level of war. An over-reliance on virtual collaboration in the future could prove to be disastrous against a more formidable opponent.

- ¹ H. Essame, *Patton: A Study in Command* (New York, NY: Charles Scribner's Sons, 1974), 255.
- ² Carlo D'Este, *Patton: A Genius for War* (New York, NY: HarperCollins Publishers, 1995), 575.
- ³ Jeffrey R. Sanderson, "General George S. Patton, Jr.: Master of Operational Battle Command. What Lasting Battle Command Lessons Can We Learn From Him?" (Monograph, School of Advanced Military Studies, United States Army Command and General Staff College, Fort Leavenworth, KS, 1997), 13.
- ⁴ D'Este, 577.
- ⁵ Sanderson, 36.
- ⁶ Ibid., 46.
- ⁷ Harry D. Raduege, Jr., "Net-Centricity: The Core of DOD Transformation," 19 February 2004, <<http://www.sia.org/agenda/government/Lt%20Gen%20Raduege%20NDIA.ppt#6>> [2 February 2005].
- ⁸ Ibid., 3-4.
- ⁹ Ibid., 10.
- ¹⁰ Joint Chiefs of Staff, *Doctrine for Joint Operations*, Joint Pub 3-0 (Washington, DC: 10 September 2001), II-2.
- ¹¹ Ibid., xi.
- ¹² Alexander J. Waugh, "Factors that Impact a Virtual Commander in a Concurrent Command Structure" (Master's thesis, Naval Postgraduate School, Monterey, CA, 1997), 21.
- ¹³ Mark G. Davis, "Operation Anaconda: Command and Confusion in Joint Warfare" (Master's thesis, School of Advanced Air and Space Studies, Air University, Maxwell Air Force Base, Alabama, 2004), 59.
- ¹⁴ Elaine M. Grossman, "Anaconda, Object Lesson in Poor Planning or Triumph of Improvisation?," *Inside Washington Publishers*, 12 August 2004, <http://www.insidedefense.com/secure/defense_docnum.asp?f=defense_2002.ask&docnum=PENTAGON-20-34-6> [2 February 2005].
- ¹⁵ Milan N. Vego, "Operational Command and Control in the Information Age," *Joint Forces Quarterly* 35 (2004): 103.
- ¹⁶ Ibid., 84.
- ¹⁷ Ibid., 70.
- ¹⁸ Ibid.
- ¹⁹ Ibid., 73.
- ²⁰ Ibid., 84.
- ²¹ Ibid., 85.
- ²² Ibid., 88-9.
- ²³ Ibid., 109-11.
- ²⁴ Waugh, 35.
- ²⁵ Ibid.
- ²⁶ Wainfan and Davis, 15.
- ²⁷ Jill M. Purdy and Pete Nye, "The Impact of Communication Media on Negotiation Outcomes," *The International Journal of Conflict Management* 11, no. 2 (2000): 164.
- ²⁸ Lynne Wainfan and Paul K. Davis, *Challenges in Virtual Collaboration: Videoconferencing, Audioconferencing, and Computer-Mediated Communications* (Santa Monica, CA: RAND Corporation, 2004), 19.
- ²⁹ Ibid., 19, citing R. M. Krauss and P. D. Bricker, "Effects of Transmission Delay and Access Delay on the Efficiency of Verbal Communication," *Journal of the Acoustic Society of America* 41 (1967): 286-292; P. L. McLeod, "An Assessment of the Experimental Literature on Electronic Support of a Group Work: Results of a Meta-analysis," *Human-Computer Interaction* 7 (1992): 257-280.
- ³⁰ Ibid., 20, citing J. C. Barefoot and L. H. Strickland, "Conflict and Dominance in Television-mediated Interactions," *Human Relations* 35, no. 7 (1982): 559-566.
- ³¹ Ibid., 20.
- ³² Ibid., 21.
- ³³ Ibid.
- ³⁴ B. Shamir, "Leadership in Boundaryless Organizations: Disposable or Indispensable," *European Journal of Work and Organizational Psychology* 8, no. 1 (1999): 49-71.
- ³⁵ Wainfan and Davis, 33, citing E. Williams, "Coalition Formation over Telecommunications media," *European Journal of Social Psychology* (1975).

-
- ³⁶ Davis, 83.
- ³⁷ U.S. Air Force Department, "Operation Anaconda: An Air Power Perspective," 7 February 2005, <http://insidedefense.com/secure/data_extra/pdf4/dplus2005_0378.pdf>, 35, [11 February 2005].
- ³⁸ Davis, 82-3.
- ³⁹ Ibid., 83.
- ⁴⁰ Ibid.
- ⁴¹ Ibid., 85.
- ⁴² Ibid.
- ⁴³ Waugh, 42.
- ⁴⁴ Davis, 75.
- ⁴⁵ Ibid.
- ⁴⁶ Ibid.
- ⁴⁷ Ibid., 85.
- ⁴⁸ Wainfan and Davis, 65.
- ⁴⁹ Ibid.
- ⁵⁰ Grossman, 6.
- ⁵¹ Davis, 86.
- ⁵² Grossman, 15.
- ⁵³ Davis, 83.
- ⁵⁴ Ibid., 12-13.
- ⁵⁵ Ibid., 90-1.
- ⁵⁶ Tommy Franks, *American Soldier* (New York, NY: HarperCollins Publishers, 2004), 378.
- ⁵⁷ Ibid.
- ⁵⁸ Ibid.
- ⁵⁹ Wainfan and Davis, 78.
- ⁶⁰ David Alberts, "The Unintended Consequences of Information Age Technologies" (Washington, D.C.: The Center for Advanced Concepts and Technologies, 1996), 37.
- ⁶¹ Ibid., 20.
- ⁶² Waugh, 42.
- ⁶³ Davis, 80.
- ⁶⁴ "VTC Quality of Service," Lessons Learned No. LL7F0-07618, 18 April 2003. Unclassified. *Navy Lessons Learned Database (NLLDB)*, Newport, RI: Navy Warfare Development Command, November 2004. SECRET/NF.
- ⁶⁵ "VTC Use and Capability," Lessons Learned No. LLCCO-02494, 5 December 2001. Unclassified. *Navy Lessons Learned Database (NLLDB)*, Newport, RI: Navy Warfare Development Command, November 2004. SECRET/NF.
- ⁶⁶ Waugh, 42.

Bibliography

- Alberts, David. "The Unintended Consequences of Information Age Technologies." Washington, D.C.: The Center for Advanced Concepts and Technologies, 1996.
- Davis, Mark G. "Operation Anaconda: Command and Confusion in Joint Warfare." Master's thesis, School of Advanced Air and Space Studies, Air University, Maxwell Air Force Base, Alabama, 2004.
- D'Este, Carlo. *Patton: A Genius for War*. New York, NY: HarperCollins Publishers, 1995.
- Essame, H. *Patton: A Study in Command*. New York, NY: Charles Scribner's Sons, 1974.
- Franks, Tommy. *American Soldier*. New York, NY: HarperCollins Publishers, 2004.
- Grossman, Elaine M. "Anaconda, Object Lesson in Poor Planning or Triumph of Improvisation?" *Inside Washington Publishers*. 2 August 2004. <http://www.insidedefense.com/secure/defense_docnum.asp?f=defense_2002.ask&docnum=PENTAGON-20-34-6> [2 February 2005].
- Purdy, Jill M. and Pete Nye. "The Impact of Communication Media on Negotiation Outcomes." *The International Journal of Conflict Management* 11, no. 2 (2000).
- Raduege, Harry D., Jr. "Net-Centricity: The Core of DOD Transformation." 19 February 2004. <<http://www.sia.org/agenda/government/Lt%20Gen%20Raduege%20NDIA.ppt#6>> [2 February 2005].
- Sanderson, Jeffrey R. "General George S. Patton, Jr.: Master of Operational Battle Command. What Lasting Battle Command Lessons Can We Learn From Him?" Monograph, School of Advanced Military Studies, United States Army Command and General Staff College, Fort Leavenworth, KS, 1997.
- Shamir, B. "Leadership in Boundaryless Organizations: Disposable or Indispensable." *European Journal of Work and Organizational Psychology* 8, no. 1 (1999).
- U.S. Air Force Department. "Operation Anaconda: An Air Power Perspective." 7 February 2005. <http://insidedefense.com/secure/data_extra/pdf4/dplus2005_0378.pdf> [11 February 2005].
- U.S. Joint Chiefs of Staff. *Doctrine for Joint Operations*. Joint Pub 3-0. Washington, DC: 10 September 2001.
- Vego, Milan. "Operational Command and Control in the Informational Age." *Joint Forces Quarterly* 35 (2004).

“VTC Quality of Service.” Lessons Learned No. LL7F0-07618. 18 April 2003. Unclassified. *Navy Lessons Learned Database (NLLDB)*. Newport, RI: Navy Warfare Development Command, November 2004. SECRET/NF.

“VTC Use and Capability.” Lessons Learned No. LLCCO-02494. 5 December 2001. Unclassified. *Navy Lessons Learned Database (NLLDB)*. Newport, RI: Navy Warfare Development Command, November 2004. SECRET/NF.

Waugh, Alexander J. “Factors that Impact a Virtual Commander in a Concurrent Command Structure.” Master’s thesis, Naval Postgraduate School, Monterey, CA, 1997.

Wainfan, Lynne and Paul K. Davis. *Challenges in Virtual Collaboration: Videoconferencing, Audioconferencing, and Computer-Mediated Communications*. Santa Monica, CA: RAND Corporation, 2004.